AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

1-18. (canceled)

19.(previously presented) Thermal insulation multi-layer structure comprising at least one flexible layer based on compressed expanded graphite particles characterised in that the density of the said flexile layer, called dense compressed expanded graphite layer, is between 0.5 and 1.6 g/cm^3 (500 and 1600 kg/m^3) and in that the said thermal insulation structure also comprises another layer called sub-dense compressed expanded graphite layer, based on compressed graphite particles with a lower density, which is between 0.05 and 0.3 g/cm^3 (50 and 300 kg/m^3), said dense and sub-dense layers being adjacent and bonded to each other.

20. (previously presented) Thermal insulation structure according to claim 19 in which the said dense and sub-dense layers made of compressed expanded graphite are adjacent and are bonded to each other by carbonation of a carbonisable binding agent, typically phenolic resin, furfuryl resin or pitch.

21. (previously presented) Thermal insulation structure according to claim 20 in which the adjacent dense and sub-dense layers made of compressed expanded graphite are intimately bonded together over their entire contact surface.

22. (previously presented) Thermal insulation structure according to claim 19 obtained by stacking the said adjacent dense and sub-dense layers, with one alternation of dense and sub-dense layers made of compressed expanded graphite.

23. (previously presented) Thermal insulation structure according to claim 19 in which the said sub-dense layer or layers made of compressed expanded graphite have a total thickness of less than 40 mm, and typically between 5 and 20 mm.

24. (previously presented) Thermal insulation structure according to claim 19 in which the said dense layer or layers made of compressed expanded graphite have a total thickness of less than 2 mm, and typically of between 0.5 and 1.5 mm.

25. (previously presented) Thermal insulation element designed to be fitted on furnaces operating in a non-oxidising atmosphere and at temperatures of more than 800° C, characterised in that it comprises a thermal insulation structure according to claim 19.

26. (previously presented) Thermal insulation element according to claim 25, characterised in that it forms part of the wall of the chamber of a furnace operating at temperatures of more than 800° C and in a non-oxidising atmosphere.

27. (previously presented) Thermal insulation element according to claim 26, characterised in that it is in the form of a brick, such that the assembly of several of these bricks forms the surface of the combustion chamber of the said furnace.

28. (previously presented) Thermal insulation element according to claim 26, characterised in that it is in the form of a cylindrical wall in one or more parts making up the combustion chamber of the said furnace.

29. (previously presented) Thermal insulation element according to claim 25, characterised in that its apparent surface is covered with a dense compressed expanded graphite layer with a density of more than 0.4g/cm^3 (400 kg/m^3) typically between 0.5 and 1.6g/cm^3 (500 and 1600 kg/m^3).

30-35.(canceled)